

FLAT PANEL COLOR DISPLAY WITH ENHANCED BRIGHTNESS AND PREFERENTIAL VIEWING ANGLES

ABSTRACT OF THE DISCLOSURE

5 A light directing apparatus comprising an LED array having RGB light emitting diode structures arrayed longitudinally along a substrate to form a plurality of RGB triplet groups and a lenslet array having a plurality of lenslet structures positioned adjacent a respective one of the RGB triplet groups. The lenslet structures include for each respective RGB triplet group a plurality of cylindrical lenses indexed to its respective RGB triplet group. The cylindrical lenses
10 are longitudinally arrayed in parallel to said RGB light emitting diode structures. This arrangement results in greater optical efficiency because light from the LEDs is preferentially directed in a desired direction where an observer is most likely to be.